

1/20

## SEQUENCE LISTING

&lt;110&gt; INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE

MILAN, Denis

ANDERSSON, Leif

LOOFT, Christian

ROBIC, Annie

ROGEL-GAILLARD, Claire

IANNUCCELLI, Nathalie

GELLIN, Joël

KALM, Ernst

LE ROY, Pascale

CHARDON, Patrick

<120> VARIANTS OF THE GAMMA CHAIN OF AMPK, DNA SEQUENCES ENCODING  
THE SAME, AND USES THEREOF

&lt;130&gt; MJPCb539-99

&lt;140&gt;

&lt;141&gt;

&lt;150&gt; EP 99402236.3

&lt;151&gt; 1999-09-10

&lt;150&gt; EP 00401388.4

&gt;151&gt; 2000-05-18

&lt;160&gt; 32

&lt;210&gt; 1

&lt;211&gt; 1867

&lt;212&gt; DNA

&lt;213&gt; Sus scrofa

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (472) .. (1389)

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agaagccatg gggaccaggg gaacaaggcc tctagatgga caaggcagga ggatgtagag 120

gaaggggggc ctccggggccc gaggggaaggt cccaggtcca ggccagttgc tgagtccacc 180

gggcaggagg ccacattccc caaggccaca cccttgggccc aagccgctcc cttggccgag 240

gtggacaacc ccccaacaga gcgggacatc ctcccctctg actgtgcagc ctcagcctcc 300

gactccaaca cagaccatct ggatctgggc atagagttct cagcctcggc ggcgtcgggg 360

gatgagcttg ggctggtgga agagaagcca gccccgtgcc catccccaga ggtgctgtta 420

cccaggctgg gctgggatga tgagctgcag aagccggggg cccagggtcta c atg cac 477  
Met His

1

ttc atg cag gag cac acc tgc tac gat gcc atg gcg acc agc tcc aaa 525  
Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser Lys

5

10

15

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|---|------|
| ctg gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt gcc | 573  |
| Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe Ala |      |
| 20 25 30  |      |
| ctg gtg gcc aac ggc gtc cga gcg gca cct ttg tgg gac agc aag aag | 621  |
| Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys Lys |      |
| 35 40 45 50   |      |
| cag agc ttc gtg ggg atg ctg acc atc aca gac ttc atc ttg gtg ctg | 669  |
| Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val Leu |      |
| 55 60 65  |      |
| cac cgc tat tac agg tcc ccc ctg gtc cag atc tac gag att gaa gaa | 717  |
| His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu Glu |      |
| 70 75 80  |      |
| cat aag att gag acc tgg agg gag atc tac ctt caa ggc tgc ttc aag | 765  |
| His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe Lys |      |
| 85 90 95  |      |
| cct ctg gtc tcc atc tct ccc aat gac agc ctg ttc gaa gct gtc tac | 813  |
| Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val Tyr |      |
| 100 105 110   |      |
| gcc ctc atc aag aac cgg atc cac cgc ctg ccg gtc ctg gac cct gtc | 861  |
| Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro Val |      |
| 115 120 125 130   |      |
| tcc ggg gct gtg ctc cac atc ctc aca cat aag cgg ctt ctc aag ttc | 909  |
| Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys Phe |      |
| 135 140 145   |      |
| ctg cac atc ttt ggc acc ctg ctg ccc cgg ccc tcc ttc ctc tac cgc | 957  |
| Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu Tyr Arg |      |
| 150 155 160   |      |
| acc atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gcc gtg gtg | 1005 |
| Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val Val |      |
| 165 170 175   |      |
| ctg gaa acg gcg ccc atc ctg acc gca ctg gac atc ttc gtg gac cgg | 1053 |
| Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp Arg |      |
| 180 185 190   |      |
| cgt gtg tct gcg ctg cct gtg gtc aac gaa act gga cag gta gtg ggc | 1101 |
| Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val Val Gly |      |
| 195 200 205 210   |      |
| ctc tac tct cgc ttt gat gtg atc cac ctg gct gcc caa caa aca tac | 1149 |
| Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr Tyr |      |
| 215 220 225   |      |
| aac cac ctg gac atg aat gtg gga gaa gcc ctg agg cag cgg aca ctg | 1197 |
| Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg Thr Leu |      |
| 230 235 240   |      |
| tgt ctg gaa ggc gtc ctt tcc tgc cag ccc cac gag acc ttg ggg gaa | 1245 |
| Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu Gly Glu |      |
| 245 250 255   |      |

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gtc att gac cgg att gtc cgg gaa cag gtg cac cgc ctg gtg ctc gtg 1293  
 Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val Leu Val  
           260                                  265                                  270

gat gag acc cag cac ctt ctg ggc gtg gtg tcc ctc tct gac atc ctt 1341  
 Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile Leu  
           275                                  280                                  285                                  290

cag gct ctg gtg ctc agc cct gct gga att gat gcc ctc ggg gcc tga 1389  
 Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
                                   295                                  300                                  305

gaaccttgga acctttgctc tcaggccacc tggcacacct ggaagccagt gaagggagcc 1449

gtggactcag ctctcacttc cctcagccc cacttgctgg tctggctctt gttcaggtag 1509

gctccgcccg gggcccctgg cctcagcatc agcccctcag tctccctggg caccagatc 1569

tcagactggg gcacctgaa gatgggagtg gccagctta tagctgagca gccttgtgaa 1629

atctaccagc atcaagactc actgtgggac cactgctttg tcccattctc agctgaaatg 1689

atggagggcc tcataagagg ggtggacagg gcctggagta gaggccagat cagtgacgtg 1749

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<211> 305

<212> PRT

<213> Sus scrofa

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Ser Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe  
                                   20                                  25                                  30

Phe Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser  
           35                                  40                                  45

Lys Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu  
           50                                  55                                  60

Val Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile  
           65                                  70                                  75                                  80

Glu Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys  
                                   85                                  90                                  95

Phe Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala  
           100                                  105                                  110

Val Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp  
           115                                  120                                  125

Pro Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu  
           130                                  135                                  140

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Lys Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu  
 145 150 155 160  
 Tyr Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala  
 165 170 175  
 Val Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val  
 180 185 190  
 Asp Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val  
 195 200 205  
 Val Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln  
 210 215 220  
 Thr Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg  
 225 230 235 240  
 Thr Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu  
 245 250 255  
 Gly Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val  
 260 265 270  
 Leu Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp  
 275 280 285  
 Ile Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly  
 290 295 300  
 Ala  
 305

<210> 3  
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 <213> Homo sapiens

<220>  
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 <222> (472) .. (1389)

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 gaaggggagc caccaggtca gggggaaggt ccccggtcca ggccaactgc tgagtccacc 180  
 gggctggagg ccacattccc caagaccaca cccttggtc aagctgatcc tgccgggggtg 240  
 ggcactccac caacaggggtg ggactgcctc cctctgact gtacagcctc agctgcaggc 300  
 tccagcacag atgatgtgga gctggccacg gagttcccag ccacagaggc ctgggagtgt 360  
 gagctagaag gcctgctgga agagaggcct gccctgtgcc tgtccccgca ggccccattt 420  
 cccaagctgg gctgggatga cgaactgcgg aaaccggcg cccagatcta c atg cgc 477

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Met Arg  
1

|   |      |
|---|------|
| ttc atg cag gag cac acc tgc tac gat gcc atg gca act agc tcc aag | 525  |
| Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser Lys |      |
| 5 10 15   |      |
| cta gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt gct | 573  |
| Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe Ala |      |
| 20 25 30  |      |
| ctg gtg gcc aac ggt gtg cgg gca gcc cct cta tgg gac agc aag aag | 621  |
| Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys Lys |      |
| 35 40 45 50   |      |
| cag agc ttt gtg ggg atg ctg acc atc act gac ttc atc ctg gtg ctg | 669  |
| Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val Leu |      |
| 55 60 65  |      |
| cat cgc tac tac agg tcc ccc ctg gtc cag atc tat gag att gaa caa | 717  |
| His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu Gln |      |
| 70 75 80  |      |
| cat aag att gag acc tgg agg gag atc tac ctg caa ggc tgc ttc aag | 765  |
| His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe Lys |      |
| 85 90 95  |      |
| cct ctg gtc tcc atc tct cct aat gat agc ctg ttt gaa gct gtc tac | 813  |
| Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val Tyr |      |
| 100 105 110   |      |
| acc ctc atc aag aac cgg atc cat cgc ctg cct gtt ctt gac ccg gtg | 861  |
| Thr Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro Val |      |
| 115 120 125 130   |      |
| tca ggc aac gta ctc cac atc ctc aca cac aaa cgc ctg ctc aag ttc | 909  |
| Ser Gly Asn Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys Phe |      |
| 135 140 145   |      |
| ctg cac atc ttt ggt tcc ctg ctg ccc cgg ccc tcc ttc ctc tac cgc | 957  |
| Leu His Ile Phe Gly Ser Leu Leu Pro Arg Pro Ser Phe Leu Tyr Arg |      |
| 150 155 160   |      |
| act atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gct gtg gtg | 1005 |
| Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val Val |      |
| 165 170 175   |      |
| ctg gag aca gca ccc atc ctg act gca ctg gac atc ttt gtg gac cgg | 1053 |
| Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp Arg |      |
| 180 185 190   |      |
| cgt gtg tct gca ctg cct gtg gtc aac gaa tgt ggt cag gtc gtg ggc | 1101 |
| Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val Val Gly |      |
| 195 200 205 210   |      |
| ctc tat tcc cgc ttt gat gtg att cac ctg gct gcc cag caa acc tac | 1149 |
| Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr Tyr |      |
| 215 220 225   |      |

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aac cac ctg gac atg agt gtg gga gaa gcc ctg agg cag agg aca cta 1197  
 Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg Thr Leu  
                   230                                  235                                  240

tgt ctg gag gga gtc ctt tcc tgc cag ccc cac gag agc ttg ggg gaa 1245  
 Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu Gly Glu  
                   245                                  250                                  255

gtg atc gac agg att gct cgg gag cag gta cac agg ctg gtg cta gtg 1293  
 Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val Leu Val  
                   260                                  265                                  270

gac gag acc cag cat ctc ttg ggc gtg gtc tcc ctc tcc gac atc ctt 1341  
 Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile Leu  
                   275                                  280                                  285                                  290

cag gca ctg gtg ctc agc cct gct ggc atc gat gcc ctc ggg gcc tga 1389  
 Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
                                   295                                  300                                  305

gaagatctga gtcctcaatc ccaagccaac tgcacactgg aagccaatga aggaattgag 1449  
 aacagcttca tttccccaac cccaatttgc tgggttcagct atgattcagg cttcttcagc 1509  
 cttccaaaat tgcctttgcc ttacttgtgc tcccagaacc cttcgggcat gcccagtga 1569  
 ccatgggatg atgaaattaa ggagaacagc tgagtcaagc ttggaggtcc ctgaaccaga 1629  
 ggcactagga ttaccccagg gccatctgtg ctccatgccc gcccatcccc ttgccgcctg 1689  
 actgggtcgg atggccccag tgggtttagt cagggcttct ggattcctcg gtttctgggc 1749  
 tacctatggc ttcagccttc agctcctggg agtcccagct gttgttccca gcaacgtcgc 1809  
 cactgccctc ctactctcca ggctttgtca tttcaaggct gctgaaatgc tgcatttcag 1869  
 gggccaccat ggagcagccg ttatttatag aactgcctgt tggaggtggg gagtctccc 1929  
 tccattcttg tccagaaaac tccttagctc tcgcagtga ccatgttctt agtctccagg 1989  
 gatggatggc cttgtatatg gaccctgag aatgagcaat tgagaaaaca aaacaaaagg 2049  
 aacaatccat gaacttagat tttattgggt tcaactcaaaa tgctgcagtc atttgacctg 2109

&lt;210&gt; 4

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 4

Met Arg Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser  
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Ser Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe  
                   20                                  25                                  30

Phe Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser  
           35                                  40                                  45

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Lys Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu  
     50                    55                    60  
 Val Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile  
     65                    70                    75                    80  
 Glu Gln His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys  
                     85                    90                    95  
 Phe Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala  
                     100                    105                    110  
 Val Tyr Thr Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp  
                     115                    120                    125  
 Pro Val Ser Gly Asn Val Leu His Ile Leu Thr His Lys Arg Leu Leu  
                     130                    135                    140  
 Lys Phe Leu His Ile Phe Gly Ser Leu Leu Pro Arg Pro Ser Phe Leu  
     145                    150                    155                    160  
 Tyr Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala  
                     165                    170                    175  
 Val Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val  
                     180                    185                    190  
 Asp Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val  
                     195                    200                    205  
 Val Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln  
     210                    215                    220  
 Thr Tyr Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg  
     225                    230                    235                    240  
 Thr Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu  
                     245                    250                    255  
 Gly Glu Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val  
                     260                    265                    270  
 Leu Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp  
                     275                    280                    285  
 Ile Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly  
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 Ala  
 305

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ctgggaacct ctatatgctg 20

<210> 8  
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tagggaaata caaatcacag 20

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gtttctgcag ctttagcatc tattcc 26

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<400> 11  
gaagtatcct gggcttctga 20

<210> 12  
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<400> 12



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26

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26

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<400> 15  
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20

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cagcacagca gtgccaccta

20

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caaactcttc taggcgtgt

19

<210> 18  
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26

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10/20

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agtcacgtgg ccatgctatc

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ttggcgcaac tgttatttct

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19

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18

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11/20

&lt;212&gt; DNA

&lt;213&gt; Sus scrofa

&lt;400&gt; 26

agaaggagac agacagggcga

21

&lt;210&gt; 27

&lt;211&gt; 1873

&lt;212&gt; ADN

&lt;213&gt; Sus scrofa

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) .. (1395)

&lt;400&gt; 27

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| atg agc ttc cta gag caa gga gag agc cgt tca tgg cca tcc cga gct | 48  |
| Met Ser Phe Leu Glu Gln Gly Glu Ser Arg Ser Trp Pro Ser Arg Ala |     |
| 1 5 10 15   |     |
| gta acc acc agc tca gaa aga agc cat ggg gac cag ggg aac aag gcc | 96  |
| Val Thr Thr Ser Ser Glu Arg Ser His Gly Asp Gln Gly Asn Lys Ala |     |
| 20 25 30  |     |
| tct aga tgg aca agg cag gag gat gta gag gaa ggg ggg cct ccg ggc | 144 |
| Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro Pro Gly |     |
| 35 40 45  |     |
| ccg agg gaa ggt ccc cag tcc agg cca gtt gct gag tcc acc ggg cag | 192 |
| Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr Gly Gln |     |
| 50 55 60  |     |
| gag gcc aca ttc ccc aag gcc aca ccc ttg gcc caa gcc gct ccc ttg | 240 |
| Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala Pro Leu |     |
| 65 70 75 80   |     |
| gcc gag gtg gac aac ccc cca aca gag cgg gac atc ctc ccc tct gac | 288 |
| Ala Glu Val Asp Asn Pro Pro Thr Glu Arg Asp Ile Leu Pro Ser Asp |     |
| 85 90 95  |     |
| tgt gca gcc tca gcc tcc gac tcc aac aca gac cat ctg gat ctg ggc | 336 |
| Cys Ala Ala Ser Ala Ser Asp Ser Asn Thr Asp His Leu Asp Leu Gly |     |
| 100 105 110   |     |
| ata gag ttc tca gcc tcg gcg gcg tcg ggg gat gag ctt ggg ctg gtg | 384 |
| Ile Glu Phe Ser Ala Ser Ala Ala Ser Gly Asp Glu Leu Gly Leu Val |     |
| 115 120 125   |     |
| gaa gag aag cca gcc ccg tgc cca tcc cca gag gtg ctg tta ccc agg | 432 |
| Glu Glu Lys Pro Ala Pro Cys Pro Ser Pro Glu Val Leu Leu Pro Arg |     |
| 130 135 140   |     |
| ctg ggc tgg gat gat gag ctg cag aag ccg ggg gcc cag gtc tac atg | 480 |
| Leu Gly Trp Asp Asp Glu Leu Gln Lys Pro Gly Ala Gln Val Tyr Met |     |
| 145 150 155 160   |     |
| cac ttc atg cag gag cac acc tgc tac gat gcc atg gcg acc agc tcc | 528 |
| His Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser |     |
| 165 170 175   |     |

12/20

|   |      |
|---|------|
| aaa ctg gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt | 576  |
| Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe |      |
| 180 185 190   |      |
| gcc ctg gtg gcc aac ggc gtc cga gcg gca cct ttg tgg gac agc aag | 624  |
| Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys |      |
| 195 200 205   |      |
| aag cag agc ttc gtg ggg atg ctg acc atc aca gac ttc atc ttg gtg | 672  |
| Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val |      |
| 210 215 220   |      |
| ctg cac cgc tat tac agg tcc ccc ctg gtc cag atc tac gag att gaa | 720  |
| Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu |      |
| 225 230 235 240   |      |
| gaa cat aag att gag acc tgg agg gag atc tac ctt caa ggc tgc ttc | 768  |
| Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe |      |
| 245 250 255   |      |
| aag cct ctg gtc tcc atc tct ccc aat gac agc ctg ttc gaa gct gtc | 816  |
| Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val |      |
| 260 265 270   |      |
| tac gcc ctc atc aag aac cgg atc cac cgc ctg ccg gtc ctg gac cct | 864  |
| Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro |      |
| 275 280 285   |      |
| gtc tcc ggg gct gtg ctc cac atc ctc aca cat aag cgg ctt ctc aag | 912  |
| Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys |      |
| 290 295 300   |      |
| ttc ctg cac atc ttt ggc acc ctg ctg ccc cgg ccc tcc ttc ctc tac | 960  |
| Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu Tyr |      |
| 305 310 315 320   |      |
| cgc acc atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gcc gtg | 1008 |
| Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val |      |
| 325 330 335   |      |
| gtg ctg gaa acg gcg ccc atc ctg acc gca ctg gac atc ttc gtg gac | 1056 |
| Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp |      |
| 340 345 350   |      |
| cgg cgt gtg tct gcg ctg cct gtg gtc aac gaa act gga cag gta gtg | 1104 |
| Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val Val |      |
| 355 360 365   |      |
| ggc ctc tac tct cgc ttt gat gtg atc cac ctg gct gcc caa caa aca | 1152 |
| Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr |      |
| 370 375 380   |      |
| tac aac cac ctg gac atg aat gtg gga gaa gcc ctg agg cag cgg aca | 1200 |
| Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg Thr |      |
| 385 390 395 400   |      |
| ctg tgt ctg gaa ggc gtc ctt tcc tgc cag ccc cac gag acc ttg ggg | 1248 |
| Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu Gly |      |
| 405 410 415   |      |

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gaa gtc att gac cgg att gtc cgg gaa cag gtg cac cgc ctg gtg ctc 1296  
 Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val Leu  
                   420                  425                  430

gtg gat gag acc cag cac ctt ctg ggc gtg gtg tcc ctc tct gac atc 1344  
 Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile  
                   435                  440                  445

ctt cag gct ctg gtg ctc agc cct gct gga att gat gcc ctc ggg gcc 1392  
 Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
                   450                  455                  460

tga gaaccttgga acctttgctc tcaggccacc tggcacacct ggaagccagt 1445  
 465

gaagggagcc gtggactcag ctctcacttc cctcagccc cacttgctgg tctggtcttt 1505  
 gttcaggtag gctccgcccc gggcccctgg cctcagcatc agcccctcag tctccctggg 1565  
 caccagatc tcagactggg gcaccctgaa gatgggagtg gccagctta tagctgagca 1625  
 gccttgtagaa atctaccagc atcaagactc actgtgggac cactgctttg tcccattctc 1685  
 agctgaaatg atggagggcc tcataagagg ggtggacagg gcctggagta gaggccagat 1745  
 cagtgacgtg ccttcaggac ctccggggag ttagagctgc cctctctcag ttcagttccc 1805  
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 gagagtcg 1873

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 <212> PRT  
 <213> Sus scrofa

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                   20                  25                  30  
 Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro Pro Gly  
                   35                  40                  45  
 Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr Gly Gln  
                   50                  55                  60  
 Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala Pro Leu  
                   65                  70                  75                  80  
 Ala Glu Val Asp Asn Pro Pro Thr Glu Arg Asp Ile Leu Pro Ser Asp  
                   85                  90                  95  
 Cys Ala Ala Ser Ala Ser Asp Ser Asn Thr Asp His Leu Asp Leu Gly  
                   100                  105                  110  
 Ile Glu Phe Ser Ala Ser Ala Ala Ser Gly Asp Glu Leu Gly Leu Val  
                   115                  120                  125  
 Glu Glu Lys Pro Ala Pro Cys Pro Ser Pro Glu Val Leu Leu Pro Arg  
                   130                  135                  140  
 Leu Gly Trp Asp Asp Glu Leu Gln Lys Pro Gly Ala Gln Val Tyr Met  
                   145                  150                  155                  160  
 His Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser  
                   165                  170                  175

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Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe  
 180 185 190  
 Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys  
 195 200 205  
 Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val  
 210 215 220  
 Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu  
 225 230 235 240  
 Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe  
 245 250 255  
 Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val  
 260 265 270  
 Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro  
 275 280 285  
 Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys  
 290 295 300  
 Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe Leu Tyr  
 305 310 315 320  
 Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val  
 325 330 335  
 Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp  
 340 345 350  
 Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln Val Val  
 355 360 365  
 Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr  
 370 375 380  
 Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln Arg Thr  
 385 390 395 400  
 Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr Leu Gly  
 405 410 415  
 Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu Val Leu  
 420 425 430  
 Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile  
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 Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
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 <212> ADN  
 <213> Homo sapiens

<220>  
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 gtg acc agc agc tca gaa aga atc cgt ggg aaa cgg agg gcc aaa gcc 96  
 Val Thr Ser Ser Ser Glu Arg Ile Arg Gly Lys Arg Arg Ala Lys Ala  
 20 25 30  
 ttg aga tgg aca agg cag aag tcg gtg gag gaa ggg gag cca cca ggt 144  
 Leu Arg Trp Thr Arg Gln Lys Ser Val Glu Glu Gly Glu Pro Pro Gly  
 35 40 45

15/20

|   |     |
|---|-----|
| cag ggg gaa ggt ccc cgg tcc agg cca act gct gag tcc acc ggg ctg     | 192 |
| Gln Gly Glu Gly Pro Arg Ser Arg Pro Thr Ala Glu Ser Thr Gly Leu     |     |
| 50 55 60  |     |
| <br>gag gcc aca ttc ccc aag acc aca ccc ttg gct caa gct gat cct gcc | 240 |
| Glu Ala Thr Phe Pro Lys Thr Thr Pro Leu Ala Gln Ala Asp Pro Ala     |     |
| 65 70 75 80   |     |
| <br>ggg gtg ggc act cca cca aca ggg tgg gac tgc ctc ccc tct gac tgt | 288 |
| Gly Val Gly Thr Pro Pro Thr Gly Trp Asp Cys Leu Pro Ser Asp Cys     |     |
| 85 90 95  |     |
| <br>aca gcc tca gct gca ggc tcc agc aca gat gat gtg gag ctg gcc acg | 336 |
| Thr Ala Ser Ala Ala Gly Ser Ser Thr Asp Asp Val Glu Leu Ala Thr     |     |
| 100 105 110   |     |
| <br>gag ttc cca gcc aca gag gcc tgg gag tgt gag cta gaa ggc ctg ctg | 384 |
| Glu Phe Pro Ala Thr Glu Ala Trp Glu Cys Glu Leu Glu Gly Leu Leu     |     |
| 115 120 125   |     |
| <br>gaa gag agg cct gcc ctg tgc ctg tcc ccg cag gcc cca ttt ccc aag | 432 |
| Glu Glu Arg Pro Ala Leu Cys Leu Ser Pro Gln Ala Pro Phe Pro Lys     |     |
| 130 135 140   |     |
| <br>ctg ggc tgg gat gac gaa ctg cgg aaa ccc ggc gcc cag atc tac atg | 480 |
| Leu Gly Trp Asp Asp Glu Leu Arg Lys Pro Gly Ala Gln Ile Tyr Met     |     |
| 145 150 155 160   |     |
| <br>cgc ttc atg cag gag cac acc tgc tac gat gcc atg gca act agc tcc | 528 |
| Arg Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr Ser Ser     |     |
| 165 170 175   |     |
| <br>aag cta gtc atc ttc gac acc atg ctg gag atc aag aag gcc ttc ttt | 576 |
| Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala Phe Phe     |     |
| 180 185 190   |     |
| <br>gct ctg gtg gcc aac ggt gtg cgg gca gcc cct cta tgg gac agc aag | 624 |
| Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp Ser Lys     |     |
| 195 200 205   |     |
| <br>aag cag agc ttt gtg ggg atg ctg acc atc act gac ttc atc ctg gtg | 672 |
| Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile Leu Val     |     |
| 210 215 220   |     |
| <br>ctg cat cgc tac tac agg tcc ccc ctg gtc cag atc tat gag att gaa | 720 |
| Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu Ile Glu     |     |
| 225 230 235 240   |     |
| <br>caa cat aag att gag acc tgg agg gag atc tac ctg caa ggc tgc ttc | 768 |
| Gln His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly Cys Phe     |     |
| 245 250 255   |     |
| <br>aag cct ctg gtc tcc atc tct cct aat gat agc ctg ttt gaa gct gtc | 816 |
| Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu Ala Val     |     |
| 260 265 270   |     |
| <br>tac acc ctc atc aag aac cgg atc cat cgc ctg cct gtt ctt gac ccg | 864 |
| Tyr Thr Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu Asp Pro     |     |
| 275 280 285   |     |

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gtg tca ggc aac gta ctc cac atc ctc aca cac aaa cgc ctg ctc aag 912  
 Val Ser Gly Asn Val Leu His Ile Leu Thr His Lys Arg Leu Leu Lys  
 290 295 300

ttc ctg cac atc ttt ggt tcc ctg ctg ccc cgg ccc tcc ttc ctc tac 960  
 Phe Leu His Ile Phe Gly Ser Leu Leu Pro Arg Pro Ser Phe Leu Tyr  
 305 310 315 320

cgc act atc caa gat ttg ggc atc ggc aca ttc cga gac ttg gct gtg 1008  
 Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu Ala Val  
 325 330 335

gtg ctg gag aca gca ccc atc ctg act gca ctg gac atc ttt gtg gac 1056  
 Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp  
 340 345 350

cgg cgt gtg tct gca ctg cct gtg gtc aac gaa tgt ggt cag gtc gtg 1104  
 Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val Val  
 355 360 365

ggc ctc tat tcc cgc ttt gat gtg att cac ctg gct gcc cag caa acc 1152  
 Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr  
 370 375 380

tac aac cac ctg gac atg agt gtg gga gaa gcc ctg agg cag agg aca 1200  
 Tyr Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg Thr  
 385 390 395 400

cta tgt ctg gag gga gtc ctt tcc tgc cag ccc cac gag agc ttg ggg 1248  
 Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu Gly  
 405 410 415

gaa gtg atc gac agg att gct cgg gag cag gta cac agg ctg gtg cta 1296  
 Glu Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val Leu  
 420 425 430

gtg gac gag acc cag cat ctc ttg ggc gtg gtc tcc ctc tcc gac atc 1344  
 Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile  
 435 440 445

ctt cag gca ctg gtg ctc agc cct gct ggc atc gat gcc ctc ggg gcc 1392  
 Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
 450 455 460

tga gaagatctga gtcctcaatc ccaagccaac tgcacactgg aagccaatga 1445  
 465

aggaattgag aacagcttca tttccccaac cccaatttgc tggttcagct atgattcagg 1505

cttcttcagc cttccaaaat tgcctttgcc ttacttgtgc tcccagaacc cttcgggcat 1565

gcccagtga ccatgggatg atgaaattaa ggagaacagc tgagtcaagc ttggaggtcc 1625

ctgaaccaga ggcactagga ttaccccagg gccatctgtg ctccatgcc gcccatcccc 1685

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gcaacgctgc cactgccctc ctactctcca ggctttgtca tttcaaggct gctgaaatgc 1865



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tgcatttcag gggccaccat ggagcagccg ttatttatag aactgcctgt tggaggtggg 1925  
 gagtcctccc tccattcttg tccagaaaac tccttagctc tcgcagtgag ccatgttctt 1985  
 agtctccagg gatggatggc cttgtatatg gacccttgag aatgagcaat tgagaaaaca 2045  
 aaacaaaagg aacaatccat gaacttagat tttattgggt tcaactcaaaa tgctgcagtc 2105  
 atttgacctg 2115

&lt;210&gt; 30

&lt;211&gt; 464

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 30

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Phe | Leu | Glu | Gln | Glu | Asn | Ser | Ser | Ser | Trp | Pro | Ser | Pro | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Thr | Ser | Ser | Ser | Glu | Arg | Ile | Arg | Gly | Lys | Arg | Arg | Ala | Lys | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Arg | Trp | Thr | Arg | Gln | Lys | Ser | Val | Glu | Glu | Gly | Glu | Pro | Pro | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln | Gly | Glu | Gly | Pro | Arg | Ser | Arg | Pro | Thr | Ala | Glu | Ser | Thr | Gly | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Ala | Thr | Phe | Pro | Lys | Thr | Thr | Pro | Leu | Ala | Gln | Ala | Asp | Pro | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Val | Gly | Thr | Pro | Pro | Thr | Gly | Trp | Asp | Cys | Leu | Pro | Ser | Asp | Cys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Thr | Ala | Ser | Ala | Ala | Gly | Ser | Ser | Thr | Asp | Asp | Val | Glu | Leu | Ala | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Phe | Pro | Ala | Thr | Glu | Ala | Trp | Glu | Cys | Glu | Leu | Glu | Gly | Leu | Leu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Glu | Arg | Pro | Ala | Leu | Cys | Leu | Ser | Pro | Gln | Ala | Pro | Phe | Pro | Lys |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Gly | Trp | Asp | Asp | Glu | Leu | Arg | Lys | Pro | Gly | Ala | Gln | Ile | Tyr | Met |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Arg | Phe | Met | Gln | Glu | His | Thr | Cys | Tyr | Asp | Ala | Met | Ala | Thr | Ser | Ser |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Lys | Leu | Val | Ile | Phe | Asp | Thr | Met | Leu | Glu | Ile | Lys | Lys | Ala | Phe | Phe |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Ala | Leu | Val | Ala | Asn | Gly | Val | Arg | Ala | Ala | Pro | Leu | Trp | Asp | Ser | Lys |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Lys | Gln | Ser | Phe | Val | Gly | Met | Leu | Thr | Ile | Thr | Asp | Phe | Ile | Leu | Val |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | His | Arg | Tyr | Tyr | Arg | Ser | Pro | Leu | Val | Gln | Ile | Tyr | Glu | Ile | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Gln | His | Lys | Ile | Glu | Thr | Trp | Arg | Glu | Ile | Tyr | Leu | Gln | Gly | Cys | Phe |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Lys | Pro | Leu | Val | Ser | Ile | Ser | Pro | Asn | Asp | Ser | Leu | Phe | Glu | Ala | Val |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Tyr | Thr | Leu | Ile | Lys | Asn | Arg | Ile | His | Arg | Leu | Pro | Val | Leu | Asp | Pro |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Val | Ser | Gly | Asn | Val | Leu | His | Ile | Leu | Thr | His | Lys | Arg | Leu | Leu | Lys |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Phe | Leu | His | Ile | Phe | Gly | Ser | Leu | Leu | Pro | Arg | Pro | Ser | Phe | Leu | Tyr |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Arg | Thr | Ile | Gln | Asp | Leu | Gly | Ile | Gly | Thr | Phe | Arg | Asp | Leu | Ala | Val |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |

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Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe Val Asp  
 340 345 350  
 Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Cys Gly Gln Val Val  
 355 360 365  
 Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln Gln Thr  
 370 375 380  
 Tyr Asn His Leu Asp Met Ser Val Gly Glu Ala Leu Arg Gln Arg Thr  
 385 390 395 400  
 Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Ser Leu Gly  
 405 410 415  
 Glu Val Ile Asp Arg Ile Ala Arg Glu Gln Val His Arg Leu Val Leu  
 420 425 430  
 Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser Asp Ile  
 435 440 445  
 Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu Gly Ala  
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 <211> 2022  
 <212> ADN  
 <213> Sus scrofa

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 agcagcctcg ggggacctaa gcatcaagag atgagcttcc tagagcaagg agagagccgt 180  
 tcatggccat cccgagctgt aaccaccagc tcagaaagaa gccatgggga ccagggggaa 240  
 aaggcctcta gatggacaag gcaggaggat gtagagggaag gggggcctcc gggcccagg 300  
 gaaggtcccc agtccaggcc agttgctgag tccaccgggc aggaggccac attccccaag 360  
 gccacacctt tggcccaagc cgctcccttg gccgaggtgg acaaccccc aacagagcgg 420  
 gacatcctcc cctctgactg tgcagcctca gcctccgact ccaacacaga ccatctggat 480  
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 gccatggcga ccagctccaa actggtcatc ttccgacaca tgctggagat caagaaggcc 720  
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 accctgctgc cccggccctc ctctctctac cgcaccatcc aagatttggg catcggcaca 1140  
 ttccgagact tggccgtggg gctggaaaac gcgcccatcc tgaccgcact ggacatcttc 1200  
 gtggaccggc gtgtgtctgc gctgcctgtg gtcaacgaaa ctggacaggc agtgggcctc 1260  
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<400> 32

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Met Glu Leu Ala Glu Leu Glu Gln Ala Leu Arg Arg Val Pro Gly Ser
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Arg Gly Gly Trp Glu Leu Glu Gln Leu Arg Pro Glu Gly Arg Gly Pro
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Thr Thr Ala Asp Thr Pro Ser Trp Ser Ser Leu Gly Gly Pro Lys His
      35           40           45

Gln Glu Met Ser Phe Leu Glu Gln Gly Glu Ser Arg Ser Trp Pro Ser
      50           55           60

Arg Ala Val Thr Thr Ser Ser Glu Arg Ser His Gly Asp Gln Gly Asn
      65           70           75           80

Lys Ala Ser Arg Trp Thr Arg Gln Glu Asp Val Glu Glu Gly Gly Pro
      85           90           95

Pro Gly Pro Arg Glu Gly Pro Gln Ser Arg Pro Val Ala Glu Ser Thr
      100          105          110

Gly Gln Glu Ala Thr Phe Pro Lys Ala Thr Pro Leu Ala Gln Ala Ala
      115          120          125

Pro Leu Ala Glu Val Asp Asn Pro Pro Thr Glu Arg Asp Ile Leu Pro
      130          135          140

Ser Asp Cys Ala Ala Ser Ala Ser Asp Ser Asn Thr Asp His Leu Asp
      145          150          155          160

Leu Gly Ile Glu Phe Ser Ala Ser Ala Ala Ser Gly Asp Glu Leu Gly
      165          170          175

Leu Val Glu Glu Lys Pro Ala Pro Cys Pro Ser Pro Glu Val Leu Leu
      180          185          190

Pro Arg Leu Gly Trp Asp Asp Glu Leu Gln Lys Pro Gly Ala Gln Val
      195          200          205

Tyr Met His Phe Met Gln Glu His Thr Cys Tyr Asp Ala Met Ala Thr
      210          215          220

Ser Ser Lys Leu Val Ile Phe Asp Thr Met Leu Glu Ile Lys Lys Ala
      225          230          235          240

Phe Phe Ala Leu Val Ala Asn Gly Val Arg Ala Ala Pro Leu Trp Asp
      245          250          255

Ser Lys Lys Gln Ser Phe Val Gly Met Leu Thr Ile Thr Asp Phe Ile
      260          265          270

Leu Val Leu His Arg Tyr Tyr Arg Ser Pro Leu Val Gln Ile Tyr Glu
      275          280          285

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Ile Glu Glu His Lys Ile Glu Thr Trp Arg Glu Ile Tyr Leu Gln Gly  
 290 295 300  
 Cys Phe Lys Pro Leu Val Ser Ile Ser Pro Asn Asp Ser Leu Phe Glu  
 305 310 315 320  
 Ala Val Tyr Ala Leu Ile Lys Asn Arg Ile His Arg Leu Pro Val Leu  
 325 330 335  
 Asp Pro Val Ser Gly Ala Val Leu His Ile Leu Thr His Lys Arg Leu  
 340 345 350  
 Leu Lys Phe Leu His Ile Phe Gly Thr Leu Leu Pro Arg Pro Ser Phe  
 355 360 365  
 Leu Tyr Arg Thr Ile Gln Asp Leu Gly Ile Gly Thr Phe Arg Asp Leu  
 370 375 380  
 Ala Val Val Leu Glu Thr Ala Pro Ile Leu Thr Ala Leu Asp Ile Phe  
 385 390 395 400  
 Val Asp Arg Arg Val Ser Ala Leu Pro Val Val Asn Glu Thr Gly Gln  
 405 410 415  
 Val Val Gly Leu Tyr Ser Arg Phe Asp Val Ile His Leu Ala Ala Gln  
 420 425 430  
 Gln Thr Tyr Asn His Leu Asp Met Asn Val Gly Glu Ala Leu Arg Gln  
 435 440 445  
 Arg Thr Leu Cys Leu Glu Gly Val Leu Ser Cys Gln Pro His Glu Thr  
 450 455 460  
 Leu Gly Glu Val Ile Asp Arg Ile Val Arg Glu Gln Val His Arg Leu  
 465 470 475 480  
 Val Leu Val Asp Glu Thr Gln His Leu Leu Gly Val Val Ser Leu Ser  
 485 490 495  
 Asp Ile Leu Gln Ala Leu Val Leu Ser Pro Ala Gly Ile Asp Ala Leu  
 500 505 510  
 Gly Ala